



Vanuatu Vehicle Emission Standards Policy Brief





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Table of Contents

List of Figures	06
Acknowledgements	08
1.0 Executive Summary	09
1.1 Overview of the policy brief	09
1.2 Summary of key findings and recommendations	10
2.0 Introduction	11
2.1 Background information on Vanuatu's transportation sector	11
2.2 Relevant Commitments and Goals in Policy Documents	12
2.3 Importance of addressing vehicle emissions – The Euro Standards	13
3.0 Context of the policy brief	15
3.1 Overview of existing vehicle fleet and emission standards in Vanuatu	15
3.2 Analysis of the current state of vehicle emissions	17
3.3 Impacts of vehicle emissions on air quality and public health	18
4.0 Options and Reference Cases	20
4.1 Vehicle Emission Standards	20
4.2 Inspection and Maintenance for vehicle emissions	21
4.3 Informing and Educating the Public	22
5.0 Policy Recommendations	23
5.1 Proposed vehicle emission standards for Vanuatu	23
5.2 Balanced approach and supporting needs	24
5.3 Public awareness and education campaigns	24
6.0 Implementation Plan	25
6.1 Timeline for implementing the proposed emission standards	25
6.2 Roles and responsibilities of relevant stakeholders	26

List of Figures

Figure 1	Registered Vehicles per year based on Data from Vanuatu Customs and Inland Revenue	11
Figure 2 and 3	NOx Limits for LDVs and HDVs according to Euro Emission Standards	13
Figure 4	Vehicles reported by car dealerships and their respective emission standard	15
Figure 5	Reported Vehicle Emission Standards by year from Vanuatu Car Dealerships consulted	16
Figure 6	Summary of 2022 vehicle data from six dealerships	16
Figure 7	Annual Vehicle registrations and share of vehicles equal or newer than 5 years old	17
Figure 8	Projected Transport Demand to 2050 for Vanuatu	17
Figure 9	Mode Share for Transport emissions in Vanuatu	18
Figure 10	Adoption of the EU Euro emissions standards for road vehicles in Asian countries (2018) updated with information from ITF (2022) and Clean Air Asia	20



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Executive Summary

1.1 Overview of the Policy Brief

This document provides policy recommendations and an implementation timeline for the introduction of vehicle emission standards in Vanuatu. The absence of local car manufacturing industry and quality requirements for newly imported vehicles risks Vanuatu becoming a dumping ground for inefficient and polluting vehicles. This makes the adoption of vehicle emission standards a viable first step. The proposed approach suggests restricting the import of older, high-polluting vehicles without requiring additional testing equipment or new procedures for roadworthiness inspections. The implementation of vehicle emission standards will gradually reduce the average emission rates in the fleet over time. It is recommended to introduce phased requirements for imported vehicles to adhere to specific European 'Euro' emission standards, which are widely recognized and used by many countries and manufacturers worldwide. The adoption of the Euro standards eliminates the need for extensive research to establish a new global norm and allows for future upgrades to higher Euro standards. A balanced approach emphasizes the importance of positive re-enforcement, including public awareness

campaigns, education, and potentially considering special provisions for lower-income groups. The implementation timeline proposes a staggered timeline for the introduction of Euro 4/IV, Euro 5/V, and Euro 6/VI standards. It suggests a minimum one-year gap/transition period between the announcement and restriction to of Euro 4/IV vehicle standards, subsequently also a minimum one-year gap between the Euro 5/V fuel standard adoption and the requirement of adherence to Euro 5/V vehicle emission standards, and a similar staggered timeline for Euro 6/VI and future standards, to accommodate stakeholders' concerns and adjust supply chains. Harmonization between fuel and vehicle standards is also recommended to expedite the phasing out of high-emitting vehicles, reduce air pollution, and improve public health. Additionally, an initial age limit of 10 years from the date of manufacture, to be further reduced to five years together with Euro 6/VI standards is suggested for used vehicles to ensure compliance with emission standards over the vehicle lifetime and promote higher safety standards and potentially better fuel economy.

1.2 Summary of Key Findings and Recommendations

- The adoption of vehicle emission standards in Vanuatu is a crucial step to reduce harmful exhaust pollutants, address environmental concerns and change the fleet over time to less emitting vehicles by changing the characteristics of imports.
- The Euro emission standards, widely recognized and used internationally, provide a tangible and clear measure of emission control and should be implemented by setting a minimum standard criterion for newly imported vehicles to Vanuatu.
- The implementation timeline suggests a phased introduction of Euro 4/IV, Euro 5/V, and Euro/VI 6 standards, with a minimum one-year gap between each standard to accommodate stakeholders' concerns and adjust supply chains.
- Harmonization between fuel and vehicle standards is recommended to expedite the phasing out of high-emitting vehicles, improve air quality, and achieve broader climate goals.
- A balanced approach that includes conducting public awareness campaigns and education programs to promote the benefits of newer, less polluting vehicles and the harms of older ones.

Introduction

2.1 Background Information on Vanuatu's Transportation Sector

Vanuatu, a nation wherein all road vehicles are imported, currently faces a regulatory vacuum when it comes to setting standards for mileage, emissions, and vehicle types. The existing Public Works Department primarily focuses on verifying roadworthiness of vehicles, neglecting to address standards for emission ratings, fuel specifications, or limitations on exhaust fumes during annual roadworthiness inspections. Adding complexity, many vehicles imported into Vanuatu are refurbished units sourced from developed countries which maintain stringent norms for emissions and mileage.

Additionally, no current legislation restricts the types of vehicles imported, barring a single rule for right-hand drive vehicles, and there are no laws concerning fuel efficiency, emissions, or obligatory quality checks. Despite annual vehicle inspections conducted by the Public Works Department, a large portion of vehicles in operation in Vanuatu are over a decade old, and likely not in an optimal state for emissions or fuel economy. Vanuatu imports over 1,000 vehicles annually, with a growth rate of approximately 4% per year.

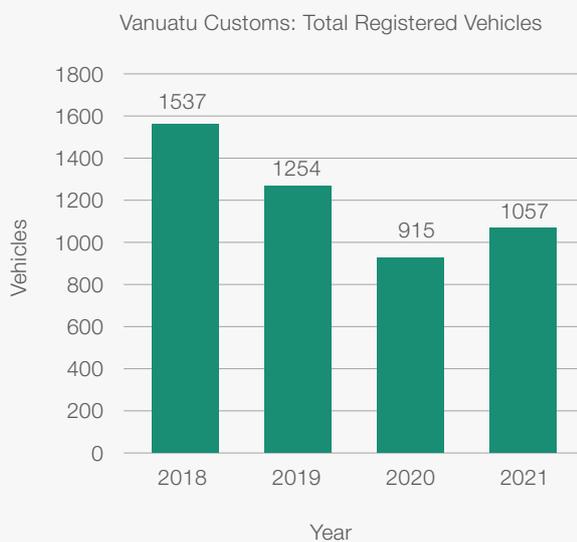


FIGURE 1 Registered Vehicles per year based on Data from Vanuatu Customs and Inland Revenue

The number of total motor vehicles is forecasted to rise from 6,845 in 2020 to more than 10,000 by 2030. Local vehicle dealers, guided by customer demand, import vehicles without any regulation restricting their choices. Current customs restrictions solely involve right-hand drive vehicles and taxation based on engine size, with additional excise tax for second-hand vehicles. There are no tax considerations linked to the age of vehicles or to the classification of vehicles, such as conventional, hybrid, or electric.

Existing regulations call for annual safety and quality checks by the Public Works Department, evaluating aspects such as suspension, lighting, brakes, and steering, yet largely ignore exhaust fumes.

Given these considerations and the trajectory of vehicle growth, the stepwise introduction of specific mileage norms, tailpipe exhaust standards, fuel efficiency regulations, and quality checks is essential. Such regulations would align Vanuatu with

international best practices in transport regulation, support a transition to cleaner and more efficient transport, and contribute positively to the nation's environmental sustainability goals. Furthermore, introducing a regulatory framework to manage vehicle import types, and tax considerations related

to the age and classification of vehicles, could drive a shift towards cleaner, low-emission vehicles. These proposed standards could in a further step extend to the Public Works Department's vehicle inspections to include rigorous checks on exhaust fumes and establish minimum standards for vehicle disposal.

2.2 Relevant Commitments and Goals in Policy Documents

TRANSPORT ENERGY EFFICIENCY

The Updated Vanuatu National Energy Roadmap (NERM) 2016 - 2030 set a goal of improving energy efficiency in the transport sector by 2% until 2020, and 10% for 2030 respectively. It yet needs to be confirmed if the 2020 goal has been achieved as planned.

NATIONALLY DETERMINED CONTRIBUTIONS (NDC)

NDC Targets for 2030: Vanuatu's Enhanced NDC (2020), a list of actions are sought to reduce emissions from the transport sector:

- Additional NDC measure 1.1 – Electric vehicles (e-buses) for public transportation (10% of total public buses).
- Additional NDC measure 1.2 – Electric cars (e-Cars) in Vanuatu (10% of government fleet).
- Additional NDC measure 1.3 – 1,000 electric two-wheelers (e-bikes)/three-wheelers (e-rickshaws).
- Additional NDC measure 2 – 20 percent biodiesel (biofuel) blending in diesel.
- Additional NDC measure 3 – Vehicle mileage and emission standards.

THE VANUATU NATIONAL ENVIRONMENT POLICY AND IMPLEMENTATION PLAN 2016-2030

The Vanuatu National Environment Policy and Implementation Plan 2016-2030 also includes targets relating to Vehicle emission standards:

- 3.1.8: By 2020, vehicle emission standards are developed and included in annual roadworthiness inspections; and
- 3.1.9: By 2025, 50% of registered vehicles comply with emission standards.

This leaves two options open, to include vehicle emission standards at the point of entry and gradually but steadily move to a cleaner fleet and/or include vehicle emission standards at the annual roadworthiness inspections. These options will be discussed in the documents in the section with options and recommendations.

2.3 Importance of Addressing Vehicle Emissions – The Euro Standards

The European ‘Euro’ emissions standards¹ are regulations established to control pollutants released by vehicles. Though emissions regulation origins can be traced back to 1970, the EU’s comprehensive standard, termed as ‘Euro 1,’ was only set in motion in 1992. This standard mandated the inclusion of catalytic converters in new cars, which consequently resulted in the standardization of fuel injection.

In the years following, various iterations of the Euro emissions standards have been established, culminating in the present ‘Euro 6’ regulation. This standard was applied to new type approvals from September 2014, and expanded to cover most vehicle sales and registrations by September 2015.

These regulations, designed to grow progressively stringent, establish permissible limits for exhaust emissions from new light-duty vehicles sold in the EU and EEA (European Economic Area) member countries and are also applied in other countries

worldwide, making them global standards.

The primary objective of these standards is to reduce harmful pollutants from vehicle exhausts to protect human health and the environment, thereby making significant strides towards environmental sustainability.

The Euro emissions standards focus on reducing the following pollutants:

- Nitrogen oxides (NOx)
- Carbon monoxide (CO)
- Hydrocarbons (HC)
- Particulate matter (PM)

The evolution of NOx limits within the EU Regulation for gasoline and diesel light duty vehicles (LDVs) can be seen in Figure 2 (left) and required NOx reduction limits enforced by EU regulation for CNG and Diesel heavy-duty vehicles (HDVs) in Figure 3 (right):

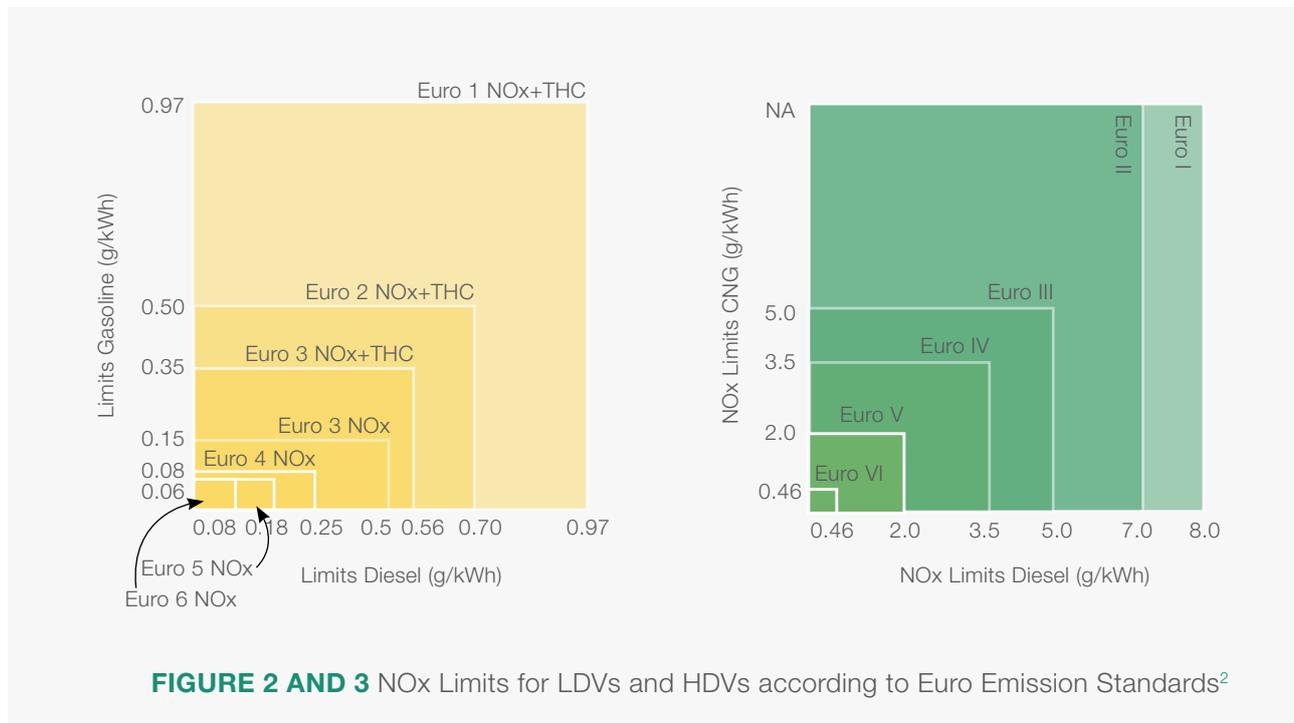


FIGURE 2 AND 3 NOx Limits for LDVs and HDVs according to Euro Emission Standards²

¹ Royal Automobile Club UK. Euro 1 to Euro 6 guide. <https://www.rac.co.uk/drive/advice/emissions/euro-emissions-standards/>

² Selleri, T., Melas, et al. (2021). An Overview of Lean Exhaust deNOx Aftertreatment Technologies and NOx Emission Regulations in the European Union. *Catalysts*, 11(3), 404. <https://doi.org/10.3390/catal11030404>

The evolution of the Euro emission standards from Euro 0 to Euro 6 has seen progressively stricter limits on vehicle emissions, but the progression is not linear. The changes in the standards reflect advancements in emission control technologies and an increasing understanding of the health and environmental

impacts of different pollutants. Because petrol and diesel engines emit different types of pollutants, they are governed by different limits within the standards. Diesel engines, for example, produce more particulate matter or "soot," prompting the advent of diesel particulate filters (DPFs).

Context of the Policy Brief

3.1 Overview of existing vehicle fleet and emission standards in Vanuatu

For the purpose of developing this brief the team has collected import data from six major car dealerships for car make, model and emission standard of the imported vehicles from 2018 to 2022 to Vanuatu. This sample represents a share between 29% (2018) and 48% (2021) of the total annual registered vehicles

which data has been obtained from the Vanuatu Department of Customs and Inland Revenue (DCIR). According to the data received the following tendency can be seen in Figure 4 for vehicles from the six car dealerships imported between 2018 and 2022:



FIGURE 4 Vehicles reported by car dealerships and their respective emission standard

The vehicle models with Emission Standard 0 were most prevalent from 2018 to 2022, with a total of 1276 vehicles, with the peak in 2018 (342 vehicles) and a steady decrease over the years: 240 vehicles in 2019, 191 vehicles in 2020, 277 vehicles in 2021, and 226 vehicles in 2022.

Vehicles with emission standards above 0 have

been growing over the years, suggesting a shift towards higher emission standards in new vehicles. In particular, vehicles with Euro standard 4 are the most prevalent in 2022, with a total of 336 vehicles. Vehicles with a standard of Euro 5 and Euro 6 have been introduced only in 2021 and 2022, suggesting a recent shift towards these higher standards.

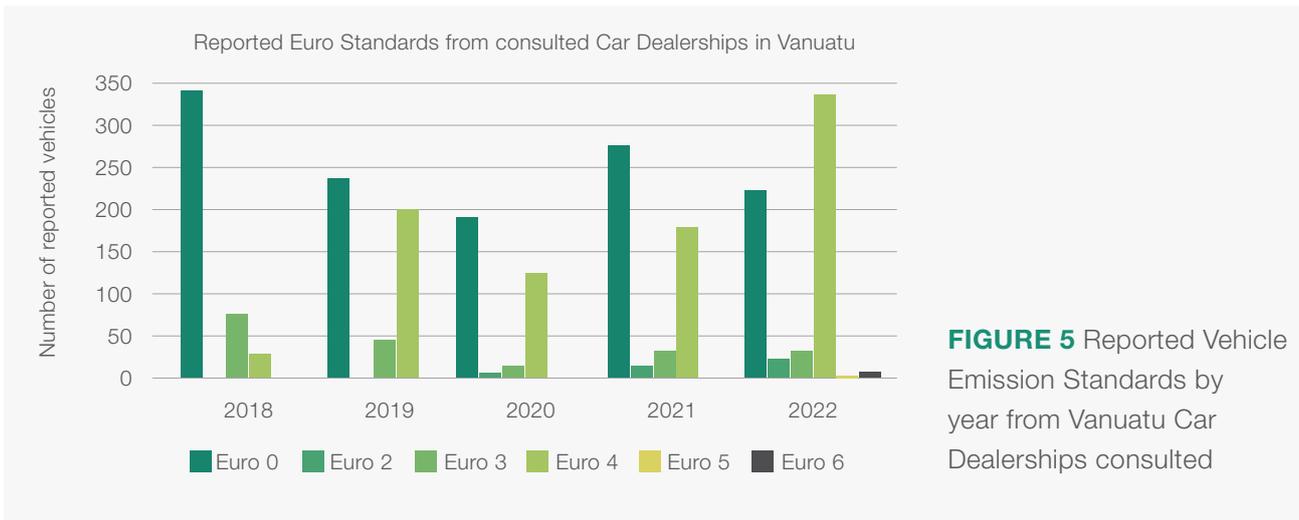


FIGURE 5 Reported Vehicle Emission Standards by year from Vanuatu Car Dealerships consulted

In 2022, there are still 226 vehicles with an emission standard of 0, indicating that while there is a trend towards higher emission standards, some vehicles still adhere to the lowest standard. These vehicles with emission standard 0 in 2022 are primarily Toyota Hilux D/CAB and LC70 Series.

From this analysis, it's clear that there has been a shift towards higher emission standards over the years, although vehicles with an emission standard of

0 are still being produced. However, the prevalence of such vehicles is decreasing. The latest situation in 2022 still sees some vehicle models with an emission standard of 0, although their numbers are much less compared to previous years. From the vehicle dealership data, it can also be seen, that Euro 0 and 2 standard vehicles imported in 2022 fall into a category of vehicles used for a commercial purpose and are new (contrary to used) vehicles.

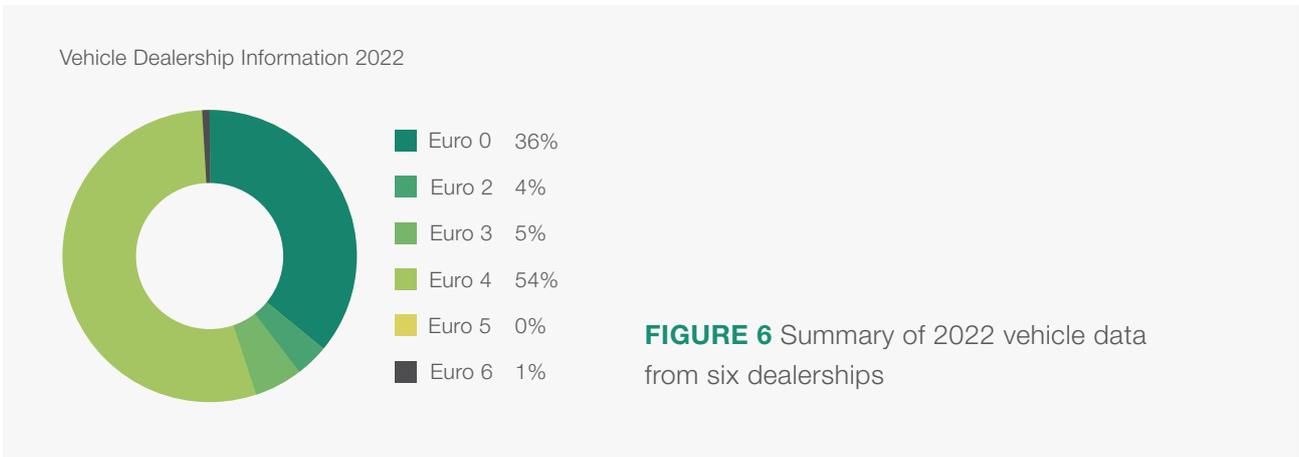


FIGURE 6 Summary of 2022 vehicle data from six dealerships

The above graphic shows the distribution of reported Euro standard the sold vehicles comply with. It can be seen that the majority of vehicles sold already complies with Euro 4 and above (55%), whereas the previously discussed vehicles with Euro 0 standard represent 36% of vehicles sold by the inquired dealerships.

Regarding vehicle registrations the data received from the Vanuatu Department of Customs and Inland Revenue (DCIR) shows between 1537 newly

registered vehicles in 2018 at its highest point to 915 vehicles in 2020. The average number of newly registered vehicles is 1190 per year over those 4 years. Figure 7 below shows also the percentage of vehicles registered of an age equal or newer to 5 years old at the moment of registration. The majority of vehicles registered falls into this category, however, it can be observed that the share of those newer vehicles has been steadily decreased during the years the data has been received for.

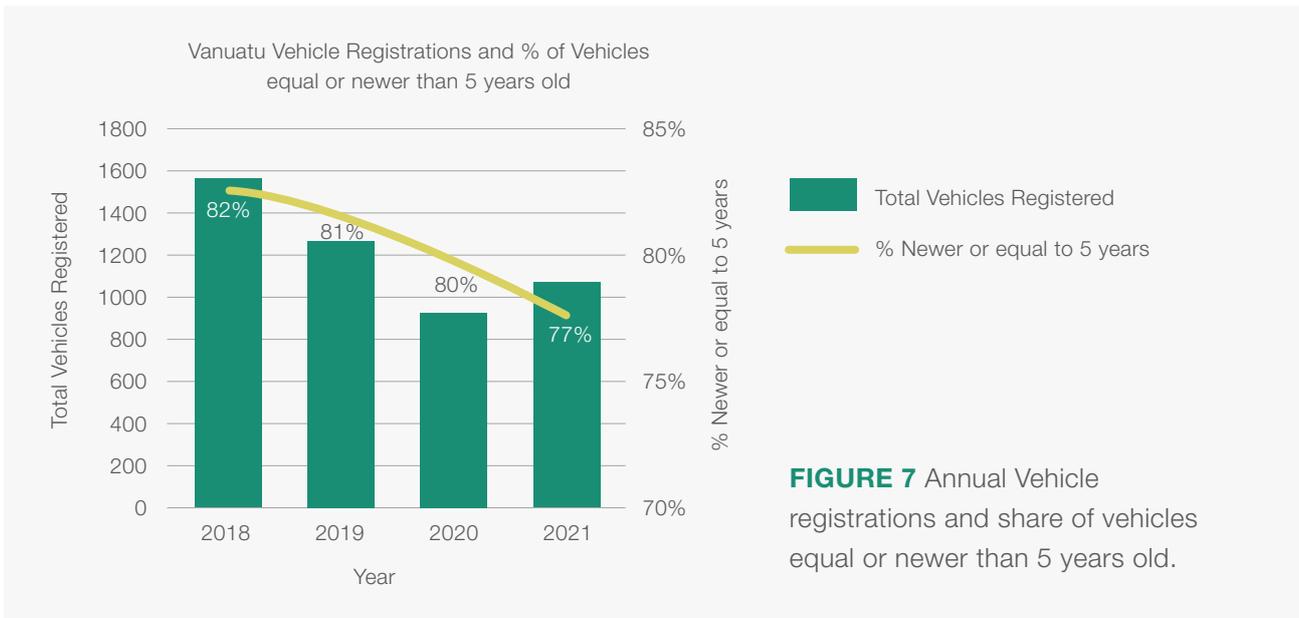


FIGURE 7 Annual Vehicle registrations and share of vehicles equal or newer than 5 years old.

3.2 Analysis of the current state of vehicle emissions

The Low Emission Development Strategy (LEDS) of Vanuatu underscores that despite efforts like the National Energy Road Map (NERM) and Nationally Determined Contributions (NDC) actions, which are projected to reduce emissions by 34,000 tonnes CO₂-equivalent per year, the escalating demand for transport could cause a net increase in emissions.

This increase is estimated at 55,000 tonnes CO₂-equivalent annually, even with the implementation of these actions. Figure 8 below shows the projected increase in vehicle kilometers and boat/plane hours until 2050, expecting a steady increase in transport demand.

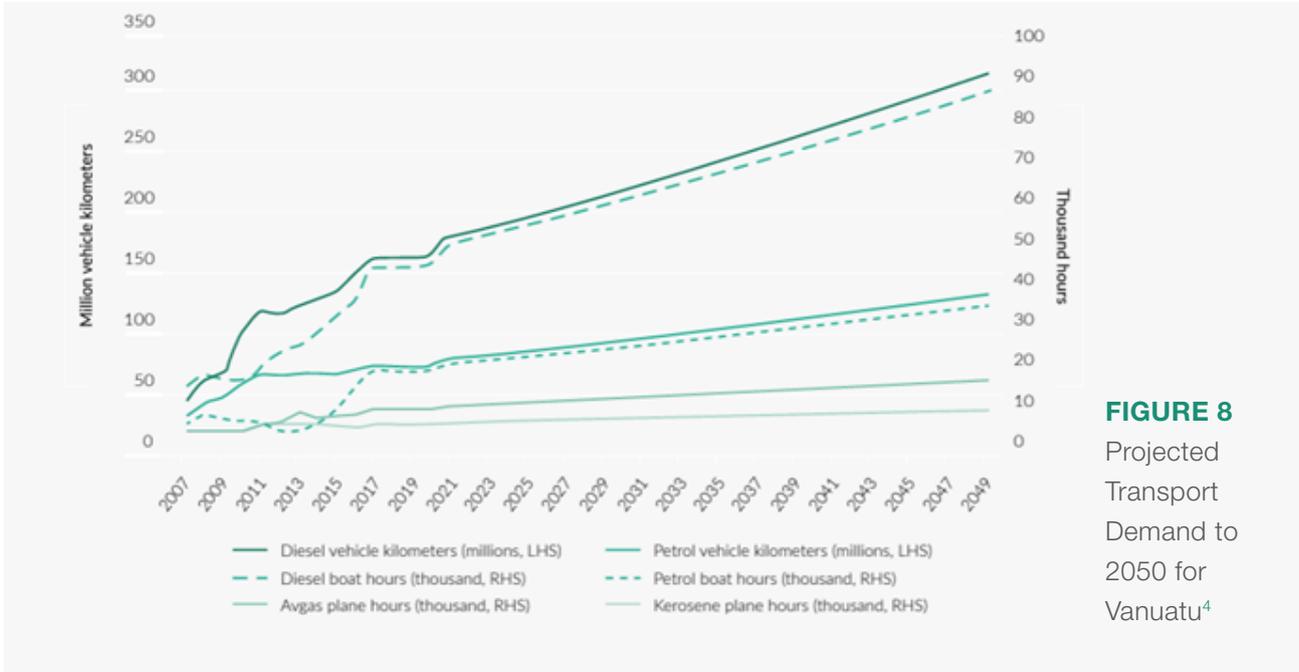


FIGURE 8 Projected Transport Demand to 2050 for Vanuatu⁴

³ Vanuatu Low Emission Development Strategy. (2022). https://gggi.org/wp-content/uploads/2022/12/22216_Vanuatu-Low-Emission_v06_RC_LQ_compressed.pdf
⁴ Vanuatu Low Emission Development Strategy. (2022). https://gggi.org/wp-content/uploads/2022/12/22216_Vanuatu-Low-Emission_v06_RC_LQ_compressed.pdf

To address the issue, Vanuatu will need to adopt electric vehicle transport, paired with renewable electricity generation, to significantly curb emissions from the transport sector by 2050. The nation's Enhanced NDC sets a goal to implement e-mobility in government and public transport by 2030, with a vision of achieving 50% electrification by 2050.

This shift, though challenging given current experience in Vanuatu, is supported by global trends favoring electric vehicles. However, facilitating this transition will require the development of appropriate policy frameworks and skills. Furthermore, future transport

strategies need to consider infrastructure needs, workforce demands, and climate-proofing measures. As such, the LEDS recommended that vehicle and fuel efficiency standards⁵ be introduced as a significant part of these efforts and states that “complementary reforms to vehicle and fuel standards will achieve greater efficiency benefits at a lower cost.”

The below figure shows that road transport represents the largest share related to CO₂ emissions and is responsible for 87% of transport-related CO₂ emissions within Vanuatu⁶.

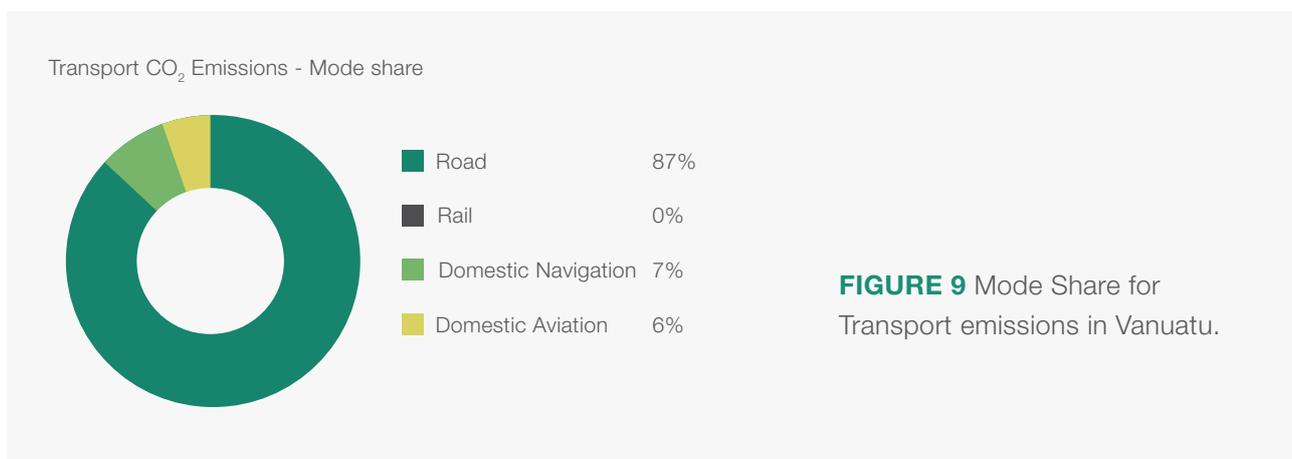


FIGURE 9 Mode Share for Transport emissions in Vanuatu.

3.3 Impacts of Vehicle Emissions on Air Quality and Public Health

Apart from GHG emissions and local pollutants detrimental to the environment, vehicle emissions also impact human health. The impact of transport emissions on human health and subsequently on the economy is a multifaceted issue. To begin with, the increase in road transportation not only boosts the levels of various pollutants such as particulate matter, sulfur oxides (SO_x), and nitrogen oxides (NO_x), but also escalates the concentration of fine particulate matter (PM_{2.5}) and black carbon (BC). These emissions constitute a significant portion of total air pollution. In Vanuatu, the proportion of total NO_x

emissions attributed to transportation stands at 33%, while transportation contributes to 5% of total PM₁₀ emissions, and 17% of total SO_x emissions⁷. Heavy-duty vehicles (HDVs), such as trucks and buses, are primarily responsible for the excessive diesel NO_x emissions that have major health implications in most regions. The introduction and enforcement of newer, stricter emission standards — more stringent than Euro 6/VI — could prevent an estimated 174,000 premature deaths worldwide, associated with fine particulate matter (PM_{2.5}) and ozone, by the year 2040. Most of these health benefits can be realized by

⁵ Fuel efficiency standards, set by governments, regulate the average distance a vehicle can travel per unit of fuel, aiming to reduce energy consumption and greenhouse gas emissions. Vehicle emissions standards, like the Euro standards, limit the number of harmful substances, such as nitrogen oxides and particulate matter, that can be emitted from vehicle exhausts

⁶ Asian Transport Outlook (2022), Asian Development Bank: <https://asiantransportoutlook.com/>

⁷ Asian Transport Outlook (2022), Asian Development Bank: <https://asiantransportoutlook.com/>

adopting Euro VI standards for heavy-duty vehicles in regions where they have not been implemented yet⁸.

Fine PM_{2.5} poses a considerable threat to human health as these particles are small enough to be inhaled deep into the respiratory tract. Exposure to PM_{2.5} can lead to a variety of health issues such as respiratory and cardiovascular diseases, which can result in reduced life expectancy. The same applies to larger particulate matter (PM₁₀), although PM_{2.5} is generally considered more dangerous due to its ability to penetrate deeper into the lungs.

Black carbon (BC), a constituent of PM_{2.5}, is produced from incomplete combustion and is

particularly harmful due to its small size and ability to cause lung damage. Similarly, emissions of sulfur oxides (SO_x) and NO_x from transport are associated with a range of adverse health outcomes, including respiratory problems, heart disease, and premature death.

In terms of the economic impact, the health effects of transport-related air pollution can lead to substantial costs. Health issues associated with air pollution result in lost productivity due to illness and increased healthcare costs. Furthermore, air pollution can lead to premature deaths, which not only is a profound personal tragedy but also has significant economic implications in terms of lost potential output.

⁸ Anenberg, S., Miller, J., Minjares, R. et al. "Impacts and mitigation of excess diesel-related NO_x emissions in 11 major vehicle markets." *Nature* 545, 467–471 (2017). <https://doi.org/10.1038/nature22086>

Options and Reference Cases

4.1 Vehicle Emission Standards

The previously introduced Euro vehicle emission standards have been applied widely by countries outside Europe and are a global standard for emission

limits in vehicles. The commitment of Asian countries can be seen in Figure 10 below.

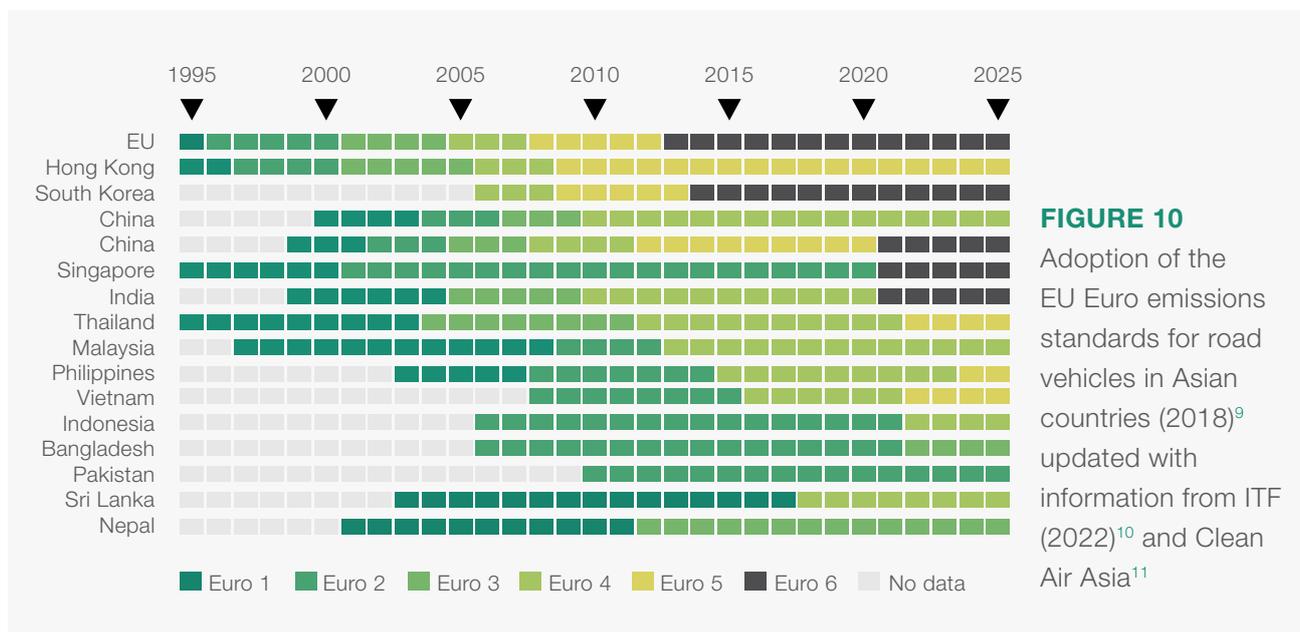


FIGURE 10

Adoption of the EU Euro emissions standards for road vehicles in Asian countries (2018)⁹ updated with information from ITF (2022)¹⁰ and Clean Air Asia¹¹

Vanuatu being a country with no local car manufacturing industry would require setting the limitation for importing vehicles of a certain standard and local industries would not be impacted as it is the case for other economies.

Stringent vehicle standards progressively lower fleetwide average emission rates as new, compliant

vehicles replace older, high-emitting ones - a process spanning decades. Growth in vehicle activity, as shown in Figure 8 necessitates new vehicles, bolstering the effects of these standards and hastening emission rate reduction. Thus, countries, such as Vanuatu, with an expected rapidly expanding fleets gain added benefits from implementing new vehicle standards.¹²

⁹ Source: European Environment Agency: <https://www.eea.europa.eu/data-and-maps/figures/number-of-international-environmental-agreements-adopted-1>

¹⁰ ITF (2022), "Implementing the ASEAN Fuel Economy Roadmap", International Transport Forum Policy Papers, No. 102, OECD Publishing, Paris (https://www.itf-oecd.org/sites/default/files/docs/implementing-asean-fuel-economy-roadmap_1.pdf)

¹¹ Clean Air Asia, Clean Fuels and Vehicles in Asia, <http://www.airqualityandmobility.org/PCFV/PDF/CleanFuelsVehiclesinAsiaUpdate.pdf>

¹² The International Council On Clean Transportation, The Impact of Stringent Fuel and Vehicle Standards on Premature Mortality and Emissions (2013) <https://globalclimateactionpartnership.org/app/uploads/2015/09/the-impact-of-stringent-fel-and-vehicle-standards.pdf>

The Partnership for Clean Fuels and Vehicles (PCFV)¹³ notes that many developing and transitioning countries are shifting towards lower sulfur fuels, after successfully phasing out leaded petrol. Vanuatu, with the planned introduction of Fuel Standards to an equivalent of Euro 5 standards is aligned with this development. PCFV recommends that countries

relying on vehicle imports have an opportunity to implement a minimum of Euro 4/IV emissions standards, which effectively prevent outdated, high-polluting technology from entering their markets and suggest that these emissions standards should be progressively tightened as vehicle technology advances.

4.2 Inspection and Maintenance for Vehicle Emissions

Regular vehicle maintenance is crucial to keep emissions and fuel consumption within optimal limits. Neglected vehicles can rapidly become significant pollutant sources, emitting harmful substances into the environment, and adversely impacting especially urban residents' health, particularly vulnerable populations like children, the elderly, and the sick. Such vehicles also consume more fuel. However, due to the economic burden, many owners avoid regular vehicle upkeep, especially if the vehicle can still perform its primary transport function. Owners often underestimate the potential fuel and monetary savings related to vehicle maintenance and overestimate their vehicle's pollution impact.

In such situations, a common problem arises—vehicles and their emission control systems deteriorate without regulation. A practical solution to this market imbalance is implementing an automotive inspection and maintenance (I/M) system. Such systems require regular emission testing of in-use vehicles for certification for further on-road use. I/M programs, often paired with roadworthiness inspections, which already exist in Vanuatu, are designed to spot high-emitting vehicles and reduce their air quality and climate impacts. These programs have proven cost-effective in some countries, like the United States¹⁴.

Testing methodologies can range from traditional periodic testing centers, on-road identification of gross emitters, to advanced on-board diagnostic (OBD) reporting systems that monitor a vehicle's condition and maintenance needs. However, the evolution of automotive technology, particularly the shift towards electrification, changes the relevance and focus of I/M programs. As electric vehicles, which significantly reduce combustion emissions, become more common, the focus of I/M may shift towards energy efficiency and roadworthiness. Policymakers will need to balance the costs of maintaining current fuel-based fleets against transitioning to an increasingly electric fleet in the future.

The introduction of Inspection and Maintenance (I/M) programs in Vanuatu is a challenging proposition, due to its direct implications on the country's public. These programs require vehicle owners to incur costs for regular inspections, fostering potential dissatisfaction and skepticism over fees and possible corruption at testing centers. Moreover, government-backed centers require an upfront investment into additional infrastructure and personnel and are prone to deterioration without an efficient auditing system, further inciting doubts about their legitimacy.

Implementing I/M programs is complicated, as they heavily depend on private citizens or companies

¹³ Clean Fuels and Vehicles (PCFV) and UN Environment Program: Addressing the Used Vehicle Market: Potential Strategies for Importing and Exporting Countries to Improve Safety, Fuel Economy and Emission Impacts https://wedocs.unep.org/bitstream/handle/20.500.11822/27789/used_vehicles.pdf?sequence=1&isAllowed=y

¹⁴ Li, Ying (2017) Evaluating and Improving the Effectiveness of Vehicle Inspection and Maintenance Programs: A Cost-Benefit Analysis Framework. *Journal of Environmental Protection*, 8, 1541-1566. <https://doi.org/10.4236/jep.2017.812095>.

investing in a public good - clean air. Voluntary systems are ineffective, since individuals are unlikely to voluntarily maintain their vehicles if it's not mandated. Hence, for successful implementation, fair and consistent enforcement of emission rules is crucial.

Government commitment is pivotal in instituting emission standards and I/M systems. However,

prioritizing these systems can conflict with a country's economic development goals due to their perceived costs and burdens on the population. Therefore, it's vital for the government to comprehend the long-term costs of pollution, including impacts on health, productivity, potential loss of life due to pollution-related diseases, and economic healthcare costs. Only with this understanding can a government effectively prioritize and operate I/M systems.

4.3 Informing and Educating the Public

Understanding vehicle fuel efficiency and emissions is essential for making informed, environmentally conscious decisions. Educating buyers and mandating efficiency and emissions labels can empower consumers to choose lower-emission vehicles. This not only fosters individual responsibility but can also stimulate demand for greener technologies. Such initiatives are key in promoting sustainable development and combating climate change.

Mandatory labelling to provide information to consumers on fuel economy and CO₂/km emissions are in place in Singapore, Thailand and Vietnam. Voluntary labelling is in place in Malaysia and the Philippines. Templates for developing these labels exist in Europe, Japan, the United States and ASEAN Member States that have already introduced fuel economy labelling.¹⁵

¹⁵ ITF (2022), "Implementing the ASEAN Fuel Economy Roadmap", International Transport Forum Policy Papers, No. 102, OECD Publishing, Paris (https://www.itf-oecd.org/sites/default/files/docs/implementing-asean-fuel-economy-roadmap_1.pdf)

Policy Recommendations

5.1 Proposed Vehicle Emission Standards for Vanuatu

Given Vanuatu's lack of local car manufacturing industry, and lack of quality requirements for newly imported vehicles, the introduction of vehicle emission standards for newly imported vehicles is a recommendable first step. This approach will restrict the import of older, high-polluting vehicles and does not require the investment in additional testing equipment and establishment of procedures and capacity for vehicle emission testing during roadworthiness inspections. Consequently, it presents a more straightforward implementation process, posing no impact on local industries and additional cost during roadworthiness checks.

As new vehicles replace older, high-emitting ones, the average emission rates in the fleet progressively decrease, a process that may span decades. Implementing inspection and maintenance (I/M) programs in Vanuatu presents challenges due to their implications for the public, including the costs of regular inspections.

As part of the strategy to harmonize Vanuatu's vehicle import regulations with international best practices, it is proposed to introduce a phased requirement for imported vehicles to adhere to specific European 'Euro'¹⁶ emission standards.

The Euro emissions standard is widely recognized and used by numerous countries and manufacturers.

With each new version, the standard raises the bar, reflecting advancements in engine technology and performance. Moreover, each iteration plays a significant role in reducing greenhouse gases (GHGs), making this standard a tangible and clear measure of emission control.

Developing an emission standard accepted by most countries could involve studying each nation's norms on vehicle exhaust pollutants. However, such an endeavor would require substantial research, which must be updated continuously as the standards evolve. Manufacturers and member countries generally adhere to standards that clearly define the permitted levels of each pollutant, which are regularly updated with each new version (e.g., Euro 1/I, 2/II through 6/VI). Establishing limits for each individual chemical could be time-consuming, demanding considerable effort and resources.

Nevertheless, adopting a standard based on the Euro norms allows the usage of the most accepted international standards, eliminating the need for additional effort to create a new global norm. Even if a lower version such as Euro III or IV is considered as the standard, considering the overall conditions of Vanuatu, it can be upgraded following the existing higher Euro standards in the future. Thus, the Euro series of standards is recommended for road vehicles.

¹⁶ Regulation No. 49, set by the United Nations Economic Commission for Europe (UNECE), is the key international norm for controlling emissions from road vehicles. Notably, the European Union (EU)'s most recent standards, known as Euro VI, implemented since 2013, are also informed by Regulation No. 49.

5.2 Balanced Approach and Supporting Needs

As Vanuatu looks toward sustainable development, it is crucial to balance environmental needs with economic realities. Gradual implementation of import restrictions on vehicles is a crucial first step¹⁷. By starting with lenient rules and progressively tightening them, consumers and businesses can adjust their expectations and behaviors without undue financial pressure.

From the sampled vehicle dealership data, in 2022, 55% of imported vehicles already adhere to Euro 4 or Euro 5 standards, with a significant portion presumably being used vehicles. The majority of Euro 0 vehicles from the sample data, commonly used for commercial purposes, are assumed to be new imports. This suggests that the primary consumers for these vehicles are not typically from low-income populations.

To further complement these efforts, fostering a

culture of public and non-motorized transport is essential. Public support is a cornerstone of any successful policy. Therefore, education and public awareness campaigns about the benefits of newer, less polluting vehicles and the harms of older ones should be prioritized. Enforcement, of course, is critical to the success of these initiatives.

Lastly, special provisions that could be accepted for lower-income groups should be considered, avoiding disproportional affection by the restrictions. Just as some countries offer additional subsidies or financing options for cleaner vehicles¹⁸, or programs to improve access to public transportation, Vanuatu could look to establish similar initiatives. Through a balanced approach, Vanuatu can facilitate the transition to a cleaner and healthier transportation system, while also taking into account the economic and social realities of its people.

5.3 Public Awareness and Education Campaigns

Public awareness is crucial to the acceptance and success of higher Euro standards. One effective method is through an informational campaign, highlighting benefits such as reduced air pollution and lower greenhouse gas emissions. Informing the public of these advantages can foster greater understanding and acceptance of these standards.

To further increase awareness and understanding, a system of voluntary or mandatory labels could be introduced. These labels would provide information on a vehicle's emissions and fuel efficiency. Through these measures, the public would be better equipped to make informed decisions, ultimately leading to a more environmentally conscious society.

¹⁷ ADB, "Vehicle Emission Standards and Inspection and Maintenance", 2003. Link: <https://www.adb.org/sites/default/files/publication/171742/inspection-and-maintenance.pdf>

¹⁸ Clean Vehicle Rebate Project, "Income Eligibility", 2023. Link: <https://cleanvehiclerebate.org/eng/income-eligibility>

Implementation Plan

6.1 Timeline for Implementing the Proposed Emission Standards

The introduction of new standards for emissions should begin with newly imported vehicles, both Light Duty (LDV) and Heavy Duty Vehicles (HDV), whether they are used or new. A proposed timeline of 12 months from the announcement to the implementation is suggested for the first standard, with the recommendation being Euro 4/IV. It is recommended to announce the timeline for future steps towards more stringent vehicle emission standards at the same time as announcing the Euro 4/IV standard.

After initiating the Euro 4/IV standard, a shift towards the Euro 5/V standard is recommended within 12 months following the formal adoption of the fuel standard. Additionally, a precise timeline should be established for the introduction of the Euro 6/VI standard, recommended to being implemented 12 months following Euro 5/V standards adoption.

Incorporating stakeholder consultations, we acknowledge the concerns of vehicle importers and their need for a reasonable timeframe to adjust their supply chains. The proposed one-year gap before enforcing each standard is designed to accommodate these needs. The assessment indicates that many imported vehicles already conform to these standards, making the transition less disruptive. Moreover, the one-year gap also provides sufficient time to formally align fuel standards with vehicle standards, despite the imported fuel already being largely compliant with

Euro 5/V standards voluntarily.

This harmonization between fuel and vehicle standards is set to bring manifold benefits. It would help expedite the phasing out of high-emitting vehicles and foster the introduction of vehicles with lower emissions and potentially superior fuel economy. This aligns with our environmental commitments, reduces air pollution and plays a significant role in the broader climate goals. Public health, too, stands to gain from this shift, given the well-established correlation between air quality and health outcomes¹⁹. Furthermore, vehicle users can potentially benefit from improved fuel economy, translating into cost savings in the long term.

Improving a vehicle's emission standard often requires improving engine technology and performance, which can lead to increased fuel efficiency. A better fuel economy is not the primary intention of the Euro standards. The main goal of these standards is to reduce harmful emissions and improve air quality. However, for example, many measures that reduce emissions also improve fuel economy by making the engine's combustion process more efficient. Therefore, vehicles that comply with higher Euro standards often exhibit better fuel economy than their counterparts adhering to lower Euro standards.

Another important consideration is to implement an age limit for used vehicles. The proposed maximum age should be initially 10 years from the date of

¹⁹ WHO, "Ambient (outdoor) air pollution", 2022. Link: [https://www.who.int/news-room/fact-sheets/detail/ambient-\(outdoor\)-air-quality-and-health](https://www.who.int/news-room/fact-sheets/detail/ambient-(outdoor)-air-quality-and-health)

manufacture and be revised together with Euro6/VI vehicle emission regulations to a recommended 5 years from the date of manufacture. In 2021, it was found that 77% of the fleet conformed to the criterion of falling within 5 years. However, data from 2018 onwards indicates that the proportion of vehicles that are five years old or less has been on a steady decline. This measure can facilitate the presence of vehicles on the road that have lesser accumulated mileage and a longer remaining lifespan for a functional emission control system. Furthermore, this restriction can have co-benefits for vehicles with higher safety standards and potentially better fuel economy than older vehicles.

Contrasting to a mileage requirement, which can

potentially be manipulated, setting an age limit by referencing the manufacturing date for vehicles is a more feasible method to manage and enforce this criterion. By doing so, it is ensured that the vehicles in use are more likely to adhere to the intended emission standards over a longer span of time.

Vehicle emission standards are a crucial initial step for Vanuatu to curb harmful exhaust pollutants and address environmental concerns. Once these standards are established and effectively implemented, Vanuatu can then consider adopting fuel efficiency standards as a further measure to enhance its environmental stewardship and reduce overall energy consumption.

6.2 Roles and Responsibilities of Relevant Stakeholders

The integration of vehicle emission standards into Vanuatu's legislation is supported by the expertise of a dedicated legal consultant. Collaborating closely with the project team, the legal consultant will actively explore and determine the optimal avenues for incorporating the standards into Vanuatu's legislative framework. This collaborative effort will thoroughly examine the required processes and

procedures. The legal consultant will ensure that the integration of these standards aligns with Vanuatu's legislation, considering any necessary adjustments or amendments. Their contribution will facilitate a robust and legally sound implementation of the vehicle emission standards, reinforcing Vanuatu's commitment to sustainable development and environmental stewardship.

